SkiErg

concept 2

USER MANUAL

concept2.com/ski

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USE AND TRAINING

The Concept2 SkiErg

The SkiErg offers terrific exercise for the entire body. Each pull engages the legs, arms, shoulders and core in a downwards "crunch," using body weight to help accelerate the handles. Each pull finishes by extending the arms down along the hips with knees partly bent.

The SkiErg is designed to be pulled with both hands at the same time. Although no machine can duplicate all the subtleties of Nordic skiing, the SkiErg enables you to train using the motion that is essential to all techniques of skate and classic skiing.

Before Your First Ski

1) Consult your physician. Be sure that it is not a health risk for you to undertake an exercise program.
2) Carefully review the skiing technique information on the next page. Improper technique such as letting go of the handle can result in injury.
3) Start each workout with several minutes of easy skiing for a warm-up.
4) Start your exercise program gradually. Ski no more than 5 minutes the first day to let your body adjust to the new exercise.
5) Gradually increase your skiing time and intensity over the first two weeks. Do not ski at full power until you are comfortable with the technique and have skied for at least a week. Like any physical activity, if you increase the volume and intensity too rapidly, fail to warm up properly, or use poor technique, you will increase the risk of injury.

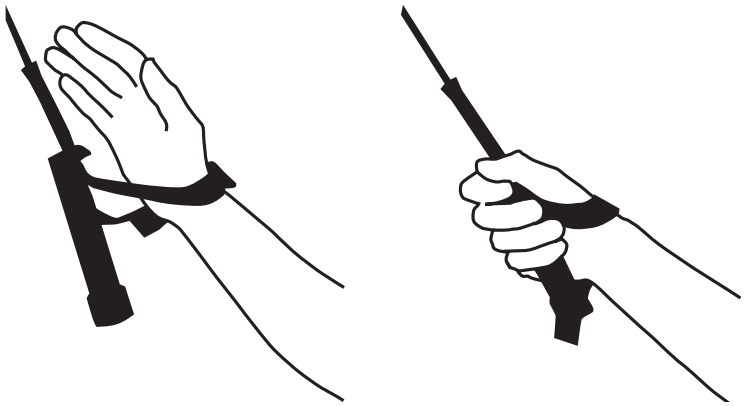
Important Safety Notes

- Use of this machine with worn or weakened parts (pulleys, cords, handle or shock cord) may result in injury to the user. When in doubt about the condition of any part, Concept2 strongly advises that it be replaced immediately using only genuine Concept2 parts. Use of other parts may result in injury or poor performance of your machine.
- The SkiErg with optional floor stand should be used on a stable, level surface.
- The wall-mounted SkiErg must be securely fixed to the wall. Be sure that your mounting bolts are going into a solid material such as wood or concrete, and that you are using the proper hardware for the wall material.
- Do not let handles fly up from pulled out position.
- Take care not to twist or cross cords, and avoid pulling cords all the way out to the point at which they stop.
- Perform maintenance as suggested on page 11 including inspection of cords and pulleys.

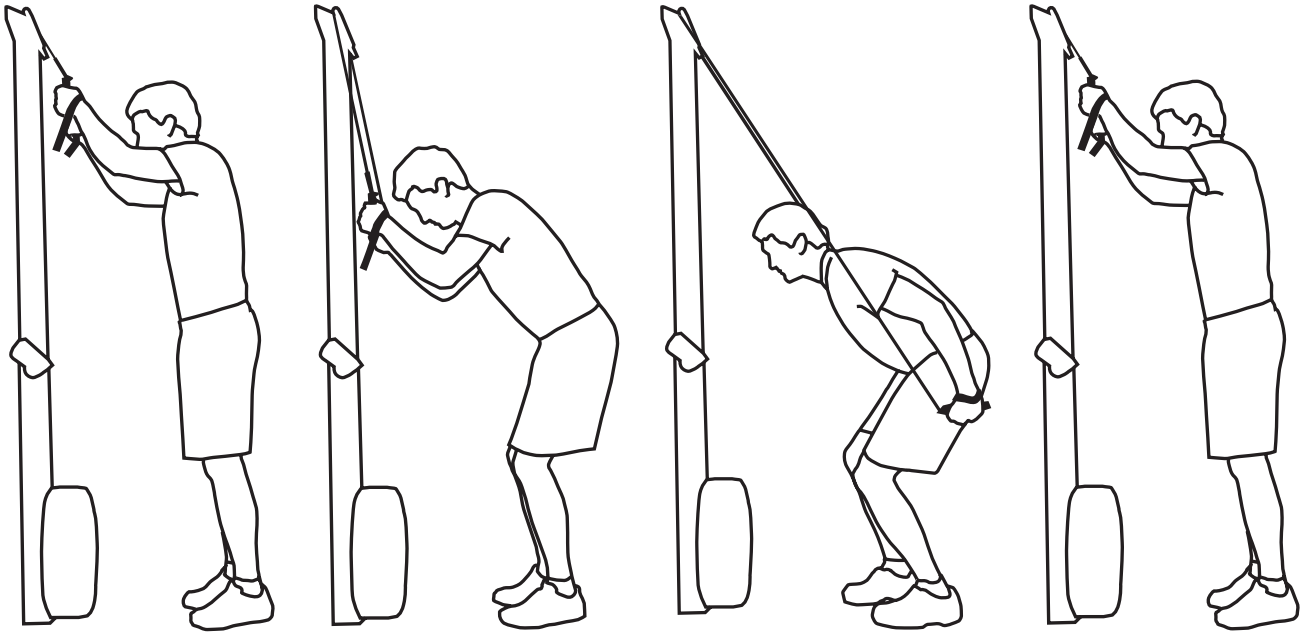
SKIING TECHNIQUE

Grips

Use the strap and grip as you would use a Nordic ski pole. Slip your hand up through the loop and then come down over the strap and grasp the handle.



How to Ski



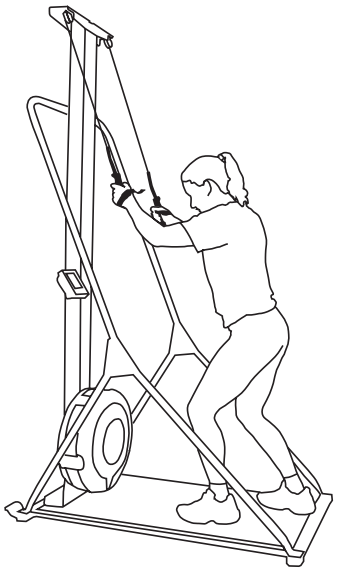
Begin with your hands shoulder-width apart and slightly above your head. Your arms should be slightly bent. Your feet should be shoulder-width apart.

Drive the handles downward by engaging your core abdominal muscles and bending your knees. Maintain the bend in your arms to keep the handles fairly close to your face.

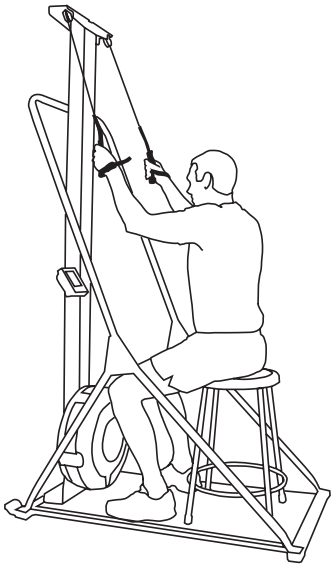
Finish the drive with knees slightly bent, and arms extended down alongside your thighs.

Bring your arms back up and straighten your body to return to the start position.

Technique Variations



Once you are comfortable with the basic skiing technique, you can add variations such as standing with one foot forward and one foot back, then switching feet. You may also find yourself coming up on your toes at certain parts of the drive, just as you do on your skis.



The SkiErg can also be used without using legs to work just the upper body and core. Used this way, the SkiErg provides a high quality workout option for those recovering from leg or foot injuries. This may be done from either a standing position, or seated on a stool.

Whether you use your entire body, or just your upper body and core, the SkiErg may be used for all kinds of workouts, from long steady state to short hard intervals. And you can work as hard or as easy as you like since the resistance is user-controlled. The harder you pull, the faster the flywheel spins, and the more resistance you will feel.

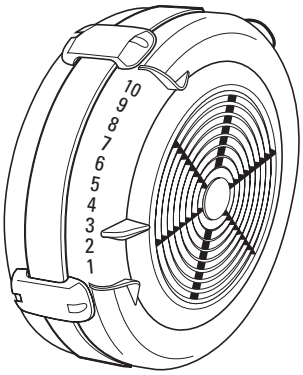
WORKOUT INTENSITY

User-Controlled Resistance

The harder you pull, the more resistance you will feel. This is because the Concept2 SkiErg uses wind resistance, which is generated by the spinning flywheel. The faster the wheel spins, the more resistance there will be.

You can ski as hard or as easily as you wish. The SkiErg will not force you to ski at any set intensity level. It is up to you. As you put more effort into your skiing, you will go faster, produce more watts, and burn more calories. All of these outputs will be measured and displayed by the Performance Monitor (PM). Keep your goals in mind. For example, if your goal is to burn calories, it is more important to ski for a long time than to ski hard. If you ski too hard, it will be difficult to ski long distances.

Damper Setting



The SkiErg features a spiral damper with settings from 1 to 10. The damper setting is like bicycle gearing. It affects the feel of the skiing but does not directly affect the resistance. By changing the damper, you can simulate the range of skiing speeds that occur on snow. Higher numbers feel more like skiing in slow conditions or uphill. Lower numbers simulate faster snow conditions, flats and skiing down hills.

For general fitness and a good aerobic workout, use a damper setting between 1 and 4.

Cadence (Strokes Per Minute = SPM)

Cadence (or Tempo) is displayed in terms of strokes per minute (SPM) in the upper right corner of the Performance Monitor.

If you are skiing for general fitness, aim for a cadence between 30 and 40 SPM. Your cadence will probably be lower for long steady workouts, and higher for short intense work intervals.

Skiers are encouraged to vary their cadence to match their poling tempo for the range of conditions that occur on snow.

Immediate, Accurate Feedback

You can view your performance in pace, watts and calories. The PM displays your output in a choice of units and display options. You can choose the units and displays that work best for you. Press CHANGE UNITS at any time to view your performance in different units.

For more information about the Performance Monitor, see page 11.

TRAINING

General Notes

Training Log: Start a training log if you do not already have one. You can set up a free online log at concept2.com, or start your own spreadsheet. It is rewarding to monitor your progress.

Warm Up and Stretch: Ski easily for at least 5 minutes to warm up, then stretch for a few minutes before continuing with your workout. Stretch again after your workout.

Getting Started: Workouts for New Skiers

Resist the temptation to ski for 30 minutes the first time you try the SkiErg. We recommend starting with a series of short bouts of skiing, with breaks in between, taking care to master proper technique from the start.

Your First SkiErg Workout

1. Begin with a minute or two of easy skiing to learn the technique. Keep the cadence between 25 and 30 spm (slower if you prefer). Follow the technique steps as shown on page 5, or check out the technique video at concept2.com/ski.
2. Ski steadily and easily for 3 minutes at a cadence between 30 and 35 spm. Continue to think about good technique while also settling into a comfortable rhythm. Keep an eye on the Performance Monitor, which will show you how hard you are pulling on each stroke, how many meters (or watts or calories) you have skied, how long you have been skiing, your cadence and, if you are connected via a HR monitor, your heart rate.
3. Take a break for several minutes. Try pushing the CHANGE UNITS and CHANGE DISPLAY buttons on the PM to see what is offered. Walk around, stretch, etc.
4. Ski easily again for 3-5 minutes. Depending on what is comfortable for you, your cadence may be anywhere between 30 and 45 spm.
5. Rest again for 1-2 minutes.
6. Repeat Step 4 once more; twice more if you're feeling really good.

The Second Ski

1. Warm up easily for 5 minutes, thinking about good technique, then stretch.
2. Ski steadily a little harder for 2 minutes.
3. For the next five minutes, alternate 30 seconds of moderate skiing with 30 seconds of very easy skiing. Cadence can be anywhere between 30 and 45 spm.
4. Ski easily for 2 minutes.
5. Repeat Step 3.
6. Ski easily for 3-5 minutes for a cool-down. Stretch.

The Third Ski

1. Warm up easily for 5 minutes, thinking about good technique, then stretch.
2. Ski steadily for 10 minutes at a comfortable pace.
3. Ski easily for 3-5 minutes.
4. Repeat Step 2.
5. Ski easily for 3-5 minutes for a cool-down. Stretch.

The Fourth Ski

1. Warm up easily for 5 minutes, thinking about good technique, then stretch.
2. Ski steadily for 4 minutes at a moderately intense pace. You should be feeling quite tired by the end of this work interval.
3. Ski easily for 3 minutes to rest.
4. Repeat Steps 2 and 3 three to four more times for a total of 3–4 four-minute intervals.
5. Ski easily for 3–5 minutes for a cool-down. Stretch.

The Fifth Ski

1. Warm up easily for 5 minutes, thinking about good technique, then stretch.
2. Ski steadily a little harder for 2 minutes.
3. For the next five minutes, alternate 1:40 of moderately intense skiing with 20 seconds of very easy skiing. Cadence can be anywhere between 30 and 45 spm.
4. Ski easily for 2 minutes
5. Repeat Steps 3 and 4 two more times for a total of 15 minutes of these "short-rest" intervals.
6. Ski easily for 3–5 minutes for a cool-down. Stretch.

Benchmark Pieces

Choose from the following suggested benchmark pieces and do them non-stop as hard as you can. Record your meters and time skied for these pieces. You should repeat these benchmark pieces periodically, every month or so, to see how you are progressing. You can also enter them in the Concept2 Online Ranking.

- Sprint benchmark: 500 meters
- Aerobic benchmark: 2000 meters
- Endurance benchmark: 5000 meters or 30 minutes

Using Workout Data to Get Faster and Fitter

The Concept2 SkiErg uses the same Performance Monitor that has been helping rowers train for many years. The PM is a powerful training partner because it is accurate, repeatable and self-calibrating. Here are several ways to use the PM to improve your fitness and your skiing performance.

Longitudinal Testing

To measure your progress over time, repeat one or more tests on the SkiErg every month or two. Keep everything the same (time or distance of test, damper setting, etc.) so that any differences measured will reflect differences in your conditioning.

Testing Across a Range of Distance/Time

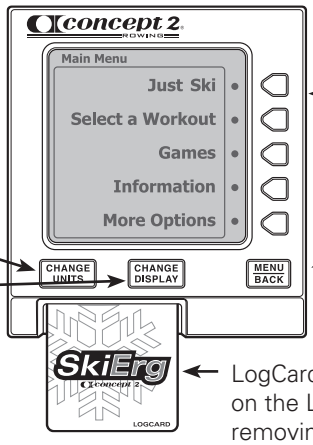
To assess your relative conditioning over different distances, perform a series of SkiErg tests from 100 meters to 10 kilometers. To assess your relative conditioning over different times, perform a series of SkiErg test from 4 minutes to 30 minutes.

Speed Efficiency Testing

Perform the same test piece at a range of damper settings to determine your strengths and weaknesses in application of power. For skiers, this will determine your effectiveness at different skiing speeds: fast conditions vs. slow conditions, uphill vs. flat, etc.

OVERVIEW OF THE PERFORMANCE MONITOR(PM)

For more detailed information about using the Performance Monitor, please visit concept2.com/pm.



CHANGE UNITS allows you to select meters, pace, watts or calories. Push this button any time while setting up a workout, skiing or viewing results.

CHANGE DISPLAY allows you to choose another display. Push this button any time while skiing. Each time you press [CHANGE DISPLAY] a new display is shown. See below.

These buttons allow you to:

- make menu selections
- increment numbers for setting workouts and date/time
- view alternate displays while skiing

MENU BACK turns on the monitor and displays **Main Menu** or the previous menu. After a workout, press this button to end the workout and return to the **Main Menu**.

LogCard – when a LogCard is present, workout data will be stored on the LogCard. After your workout, return to the **Main Menu** before removing the LogCard to ensure proper storage of data. (If no LogCard present, data is stored in **Memory**.) Use the "Concept2 LogCard Utility" to back up your LogCard data to your PC. (USB cable provided)

Note: A LogCard is provided with every Performance Monitor (PM). Each card can be shared by up to five users. Additional cards can be purchased from Concept2.

Five Graphic Displays

Note: Heart Rate (HR) will be displayed only if HR Interface is in use.

GETTING STARTED

Turning the PM On/Off:

The PM will turn on when you:

- start to pull
- press [MENU/BACK]
- insert a LogCard or USB cable
- insert batteries or battery pack

The PM turns off after four minutes of inactivity on a workout screen, or after one minute on the **Main Menu** screen.

Setting Date and Time:

The first time you turn on the PM, you are prompted to set the date and time. This ensures your results are associated with the proper date.

- If you ever need to re-set Date/Time, from **Main Menu** press **More Options > Utilities > Set Date and Time**. Use buttons as indicated to increase or decrease time.

General Operation:

- The PM automatically displays your workout data as soon as you start skiing. It is not necessary to press any buttons if you do not want to.
- Press [MENU/BACK] to go back to the previous display.
- Press [CHANGE UNITS] or [CHANGE DISPLAY] at any time during and after your ski to view different units and a different presentation of your workout data.
- We encourage you to explore the menu and experiment with the buttons!

Using a Heart Rate Monitor:

The PM displays your heart rate if one of the following heart rate systems is in use:

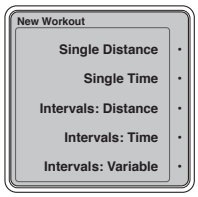
	PM3	PM4
POLAR	The PM3 will receive heart rate transmission from a Polar™ chest belt IF the optional Concept2 Heart Rate Receiver (available from Concept2) is in use and plugged into the PM3.	The PM4 will receive heart rate transmission from a Polar™ chest belt IF the optional Concept2 Heart Rate Receiver (available from Concept2) is in use and plugged into the PM4.
SUUNTO ANT+	Not available.	The PM4 will receive heart rate transmission directly from a Suunto™, Garmin™ or ANT+SPORT™ chest belt. See **More Options** for set up.

Just Ski – Automatic Operation

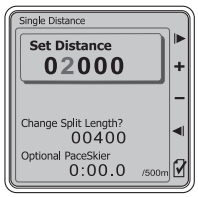
Just Ski is designed for those days when you would rather not push any buttons or pre-set your workout. Your first pull will turn on the PM and start recording your workout time and distance automatically. You may also select **Just Ski** to set up the PM screen before you start skiing.

Note: You must ski for at least one minute for results to be saved in memory or on your LogCard. **Just Ski** allows you to ski up to 50,000 meters.

Select Workout

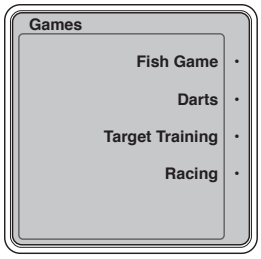


The PM lets you choose or create a wide variety of workouts. You can choose from the **Standard List** of pre-set workouts provided on the PM, or you can create workouts of your own and build your own **Custom List**. If you have a LogCard, you can store your five favorite workouts (**Favorites**) on the LogCard. The **ReSki** function allows you to "re-ski" a saved workout (in **Memory** or on the LogCard) by skiing against a Paceskier driven by a split-by-split* replay of the saved workout. You can also race a Paceskier in a **New Workout** by entering a pace for the Optional Paceskier setting when you set up the workout.

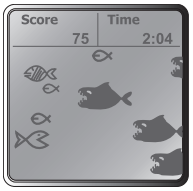


*Understanding Splits: Your workout results will be displayed and stored in two ways: as a final result for the total distance or time, and as a set of points along the way called splits. The splits show how your pace varied through the workout. If you select a workout from **Standard List**, **Custom List**, or **Favorites**, the duration of the split will be set for you. If you set up a **New Workout** you have the opportunity to set the split duration. The PM divides your New Workout into five segments, or splits, unless you alter the split duration during set up. Interval workouts are not formatted to utilize splits.

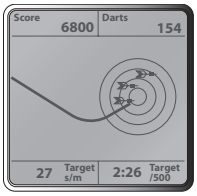
To edit **Custom List** you must have a LogCard inserted. From **Main Menu** select
More Options > LogCard > LogCard Utilities > Edit Custom List. This enables you to copy workouts from **Favorites** on your LogCard to the **Custom List** on the monitor.



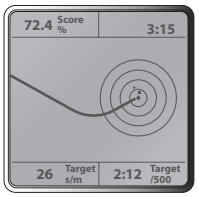
Games



Fish Game: Earn points by catching good fish, and avoid losing points by getting caught by the bad fish! Ski harder and your fish swims up. Ski easier and your fish swims down. Each game lasts four minutes. Your Fish Game workout information (time, distance, pace per 500 meters, etc.) is logged to your LogCard (or PM **Memory** if skiing without a LogCard) just like a regular workout.



Darts (PM4 Only): This game rewards consistency in stroke rate and power output. You get 300 darts to "throw" in a game and your score is calculated just like a real game of darts. A bull's eye is worth 50 points and the next three rings are worth 25, 10 and 5 points each.

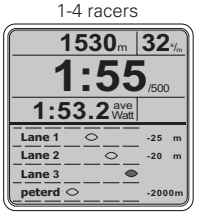


Target Training (PM4 Only)**:** This game rewards consistency and gives you additional options to make it a more powerful training tool. Your score is the percent of the best possible score obtainable. A bull's eye is worth 5 points, and the remaining rings are worth 3, 2, and 1 point.

Target Training offers two choices:

- **Just Ski** – An open-ended target training session that allows you to ski for as long as you like. Like the Darts game, the target pace will be based on your recent pull.
- **Advanced** – Gives maximum control of your target training session by allowing you to set your target pace, target stroke rate and workout time. If you are interested in achieving a target pace and stroke rate, and holding it for a pre-determined length of time, this is the game for you.

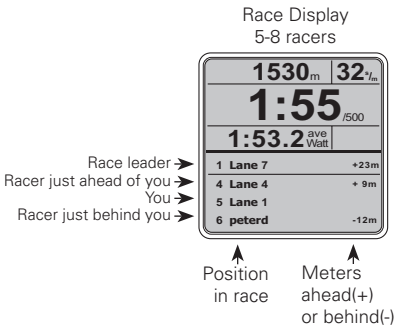
Race Display
1-4 racers

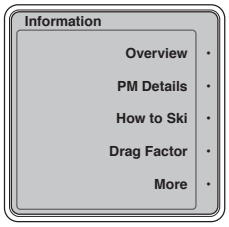


Racing (PM4 Only): The PM4 enables you to set up races with up to eight PM4-equipped SkiErgs without using a computer. This can be done wirelessly or by using Ethernet patch cables available from Concept2. If using cables, be sure to plug them in before starting the race.

One person creates the race on their PM4 by following the PM4 menu; others join in using their own PM4.The race creator is always in Lane 1 and starts the race when all are ready. Remaining lane numbers are assigned based on order of entry into the race. The race screen displays names for racers using LogCards.

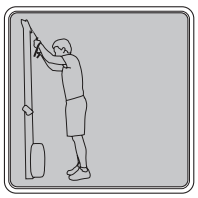
If using Suunto™ chest belts, you must use cables to race. In certain environments where other devices (WiFi, Bluetooth, etc.) are in use, Concept2 suggests use of cables. Only one wireless race can be in progress at a time.



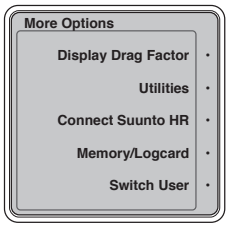


Information/Help

The PM contains on-board information to help you if the manual is not available. This section includes a brief skiing lesson with an animation of proper skiing technique, an explanation of the **Drag Factor**, information about batteries and more. We encourage you to press the **Information** button from the **Main Menu** and read through the information provided.

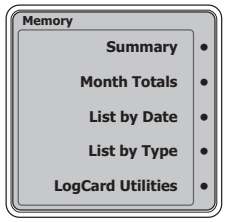


More Options

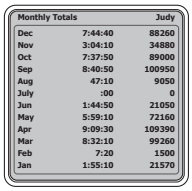


The **More Options** menu provides the following functions and utilities:

- **Display Drag Factor:** Drag factor is a measure of fan load. The PM self-calibrates by recalculating the drag factor every stroke so you get a true measure of your effort regardless of the damper setting or changing conditions.
- **Utilities:** Allows you to re-set the date, time or language. You can also adjust the contrast of the LCD, check battery status and add workouts to the **Custom List**.
- **Connect Suunto HR:** (PM4 only) Suunto™ heart rate chest belts can be used to display and record your heart rate. Each Suunto chest belt has a unique ID number. Use this menu to select your chest belt's ID number. Save your ID number to a LogCard to have the LogCard automatically recognize your Suunto™ chest belt (for future workouts). Garmin and other ANT SPORT™ chest belts may also be used. For more information, visit concept2.com/heartrate.



- **Memory/LogCard:** The PM stores workouts in two ways. If no LogCard is present, the PM will store your most recent workouts in **Memory**. The oldest are automatically deleted. If a LogCard is inserted before a workout, the workout data is stored on the LogCard, which stores approximately 300 workouts. The LogCard enables you to track your total and monthly meters and your performance during each split or interval of your workout (including heart rate, if available). You can view your workouts listed by date or by type. Workout data can be moved from **Memory** to LogCard.



- **Switch Users:** Enables you to switch from one user to another on a shared LogCard.

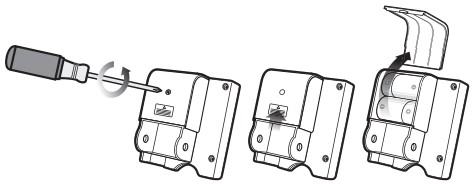
Additional information is available at concept2.com and c2forum.com.

BATTERY INFORMATION

PM3	PM4
The PM3 uses two alkaline D-Cell (LR20) batteries. When you are skiing, the flywheel provides a portion of the power to extend battery life.	Comes equipped with rechargeable battery pack. Recharge rate depends on usage pattern of skier: the more and harder you ski, the more quickly the PM4 charges. Under certain usage patterns, it may be better to use two alkaline D-Cell (LR20) batteries. May also be recharged by connecting PM4 to PC using USB cable. Refer to concept2.com/pm4 for more info.

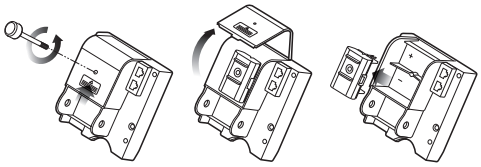
Notes:

1) Remove batteries or battery pack from the PM3 or PM4 if monitor will not be used for a period of four months or more.



PM3

Battery compartment: Loosen screw and press thumbstrike in direction shown to open.



PM4

Safety Information for PM4 Rechargeable Battery Pack

Do not:	Do:
• Open the plastic case • Drop the battery pack • Allow battery pack pins to touch each other or any metal object • Use if damaged or leaking • Trash, incinerate, crush, etc.	• Use only in a PM4; if not used in PM4, store carefully so pins are not shorted • Keep clean and dry • Use between 0˚ and 40˚ C • Charge (ski or plug PM4 into USB) after prolonged period of non-use • Keep battery pack away from children • Recycle properly

WARNING: If batteries leak, do not use them. Battery fluids are corrosive and can damage eyes, irritate skin, etc. If contact occurs, wash affected area immediately and thoroughly with water.

MISCELLANEOUS

● Cleaning the PM

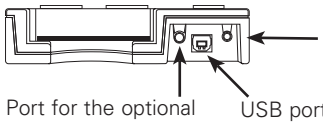
Use a cloth lightly dampened with water only. Do not spray with a cleaner or leave in the rain.

● Formulas Used

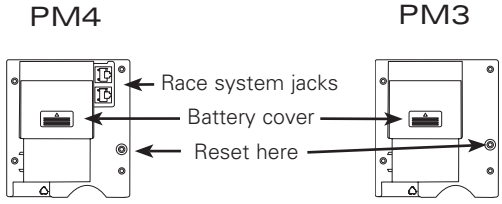
Watts = 2.80/(sec/meter)^3

Calories/Hour = Kcal/hr = (watts) x (4) x (0.8604) + 300

● Bottom View of PM


Flywheel sensor cable must be connected here for the PM to operate.
Port for the optional Polar™ heart rate receiver.
USB port for connecting to a computer. Beveled corners on USB cable plug face the back of the monitor. DO NOT FORCE when plugging in. See concept2.com/pm for current information.

● Back View of PM



PM TROUBLESHOOTING

1. If the PM malfunctions or does not "wake up," try one of the following:
   - Insert a paper clip (PM3) or pen/pencil tip (PM4) into the reset hole on the back and press lightly.
   - Remove the batteries for 30 minutes and insert two new alkaline D-Cell (LR20) batteries.
2. To change language: press [MENU/BACK] until screen stops changing. Press fifth grey button on right, then press second grey button on right twice, and select your language. Alternately, hold down CHANGE UNITS and CHANGE DISPLAY and reset monitor. You can then select your desired language.
3. If your computer does not recognize that your PM3/PM4 is connected to it try one of the following:
   - Use another computer and/or USB cable.
   - Remove batteries for 30 minutes then reinsert batteries and try again.

Refer to concept2.com/pm for more information and software updates.

MAINTENANCE

A minimal amount of maintenance performed on a regular basis will assure proper function and prolong the life of your SkiErg. The PM will keep track of accumulated, or lifetime, meters. This will help you determine when to perform maintenance procedures. To view lifetime meters on the PM push Main Menu/More Options/ Utilities/ Product ID/More Information.

Every 500,000 meters (approximately 50 hours of use)

Inspect the Cords

There are three separate cords and one bungee cord to inspect. Important! All cords are of a specific type and should be replaced with the appropriate Concept2 replacement cord if significant wear or damage is observed. See below for a description of cord wear/damage.

Cord Inspection:

1. The blue cord is a single cord connected to both handles and can be easily inspected by pulling the handles all the way out and visually checking for wear. See below for a description of cord wear.
2. To inspect the cords working inside the vertical frame, the lower back cover must be removed. If the SkiErg is mounted to a wall it must be removed for this inspection.
   - Remove the lower back cover by removing the six screws. This will expose the light grey cord that winds onto the flywheel spool, the blue cord that winds onto the spool (this is a separate cord form the one attached to the handles), and the bungee cord.
   - Have a helper slowly pull the ski pole grip handles all the way out and observe the condition of the cords. Pulling the handles out will allow you to see the entire working length of these three cords.

   A Description of Cord Wear/Damage:

   - The blue cord is made up of strong, white inner fibers and the blue braided covering. Some "fuzzing" of the blue covering is to be expected, but once the white fibers are exposed the cord should be replaced immediately.
   - The light grey cord is a solid braid (not a covering over inner fibers). Over time the surface will show "fuzzing." If this "fuzzing" becomes worse in a localized spot on the cord it is time to replace the cord.
   - The bungee cord is similar to the blue cord but has elastic fibers with a braided covering. Some "fuzzing" of the covering is to be expected, but once the white fibers are exposed the cord should be replaced immediately.

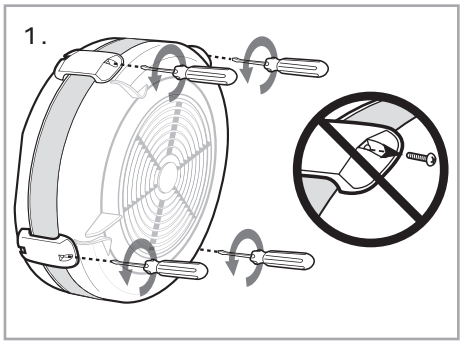
Inspect the Fasteners

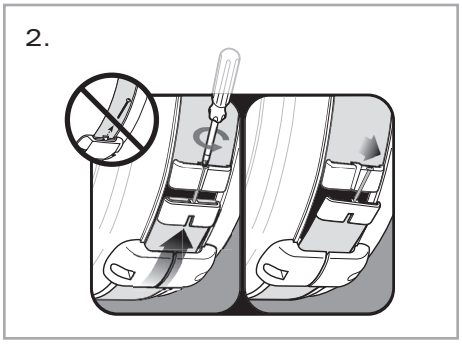
Check that all fasteners are tight and have not loosened during use. If your SkiErg is wall mounted, pay particular attention to the wall mount fasteners.

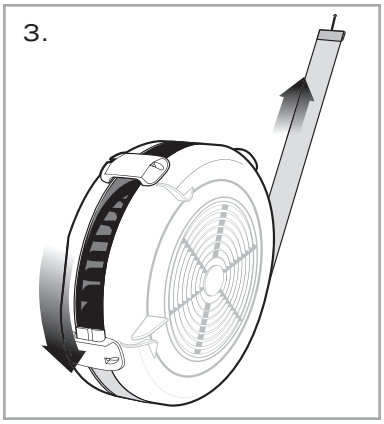
MAINTENANCE

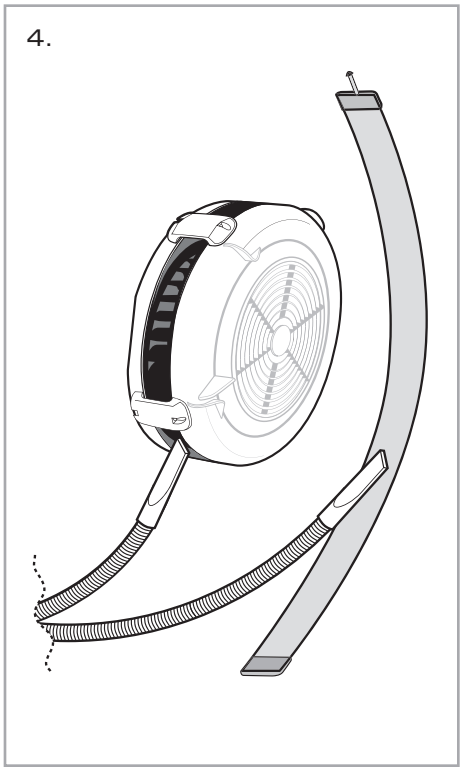
As needed

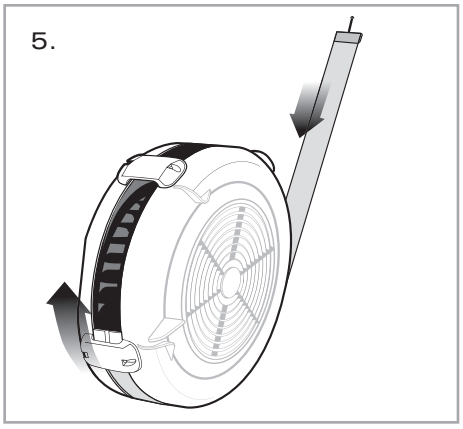
- Clean grips and straps after each workout. Use a mild soap or cleaning product.
- Clean surfaces of your SkiErg with any household cleaner. DO NOT spray any fluid onto the monitor.
- Clean dust and lint which can collect inside of the flywheel enclosure. This buildup can restrict airflow reducing the resistance of the fan. The outer cover of the fan enclosure can be removed for cleaning by removing the four screws connecting the cover halves.
  See illustrations below.

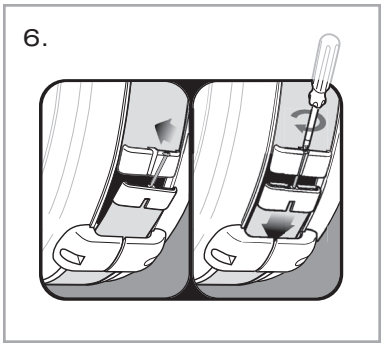


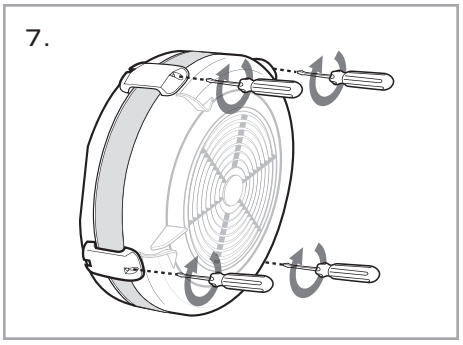












IMPORTANT: The Performance Monitor (PM) is a sealed unit. DO NOT TAKE APART. Any attempt to dissassemble will void warranty. Contact Concept2 if there are problems with the PM.

SKIERG WARRANTY

Concept2 SkiErgs are backed by a limited 2 year and 5 year warranty. For complete warranty information in the U.S. and Canada, visit concept2.com.

For warranty information outside the U.S. and Canada, contact the authorized Concept2 dealer from where your SkiErg was purchased. A list of authorized Concept2 dealers can be found at concept2.com/international. If you do not find a local dealer in your territory visit concept2.com or email info@concept2skierg.com.

concept2.com/ski